



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/648,319

08/27/2003

Naoshi Matsuo

1359.1084

5353

21171 7590 03/22/2007

STAAS & HALSEY LLP

SUITE 700

1201 NEW YORK AVENUE, N.W.

WASHINGTON, DC 20005

EXAMINER

SINGH, RAMNANDAN P

ART UNIT

PAPER NUMBER

2614

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

03/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/648,319

Applicant(s)

MATSUO, NAOSHI

Examiner

Ramnandan Singh

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3, 4, 6 and 8 is/are allowed.
- 6) ☒ Claim(s) 1-2, 5 and 7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>Nov. 06, 2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy in Japanese has been filed on Aug. 27, 2003.

### ***Claim Objections***

2. Claim 3 is objected to because of the following informalities:

Claim 3 recites the limitations "a window multiplication / orthogonal transformation" in line 3. It is unclear whether "multiplication or orthogonal" or both "multiplication and orthogonal" are required. A similar thing holds for "an inverse orthogonal / overlap processing portion" in line 19.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuo [US 20020075818 A1].

Regarding claim 1, Matsuo teaches an echo canceling system provided in a full-duplex communication system shown in Figs. 1, 9, the system comprising:

an arrival time detecting portion for detecting a respective echo arrival time (i.e. delay detector 210) of one or plural echo paths based on a reference signal and an echo signal, wherein the delay detector inherently determines an echo arrival time in order to compute a delay [Fig. 9; Para: 0074-0083];

a pseudo-echo calculating filter (201) for calculating as many pseudo-echo signals as the detected arrival times [Fig. 2; Para: 0052]; and

a subtracting unit (203) for subtracting the overall pseudo-echo signal from the echo signal [Figs. 1-2, 8-9; Para: 0097-0102].

Although Matsuo teaches using a delay for a single echo signal, it would have been obvious to one of ordinary skill in the art at the time the invention was made to compute multiple echo delays in order to effectively

cancel multipath echoes by using an adding unit for overlapping the calculated pseudo-echo signals to obtain an overall pseudo-echo signal.

Regarding claim 2, Matsuo further teach the echo canceling system , wherein the arrival time detecting portion calculates a correlation coefficient between the reference signal and the echo signal and detects a time difference as the arrival time in a case where the correlation coefficient is larger than a predetermined threshold [Fig. 6; Para: 0074-0083].

Regarding claims 5 and 7, the limitations are shown above.

***Allowable Subject Matter***

5. Claims 3-4, 6 and 8 would be allowable.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 3 recites an echo canceling system and limitations for the following: a window multiplication and orthogonal transformation processing portion for performing an orthogonal transformation processing

represented by a fast Fourier transform for a predetermined window length based on a reference signal and an echo signal to obtain an amplitude spectrum and a phase spectrum of each of the reference signal and the echo signal and an inverse orthogonal transformation and overlap processing portion for performing an inverse orthogonal transformation processing based on the amplitude spectrum of the echo canceling signal and the phase spectrum of the echo signal, followed by an overlap processing, to obtain an echo canceled signal.” The prior art of record does not teach these limitations. Therefore, claim 3 is indicated allowable.

Claims 6 and 8 are essentially similar to claim 3 and are indicated allowable.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramnandan Singh whose telephone number is (571) 272-7529. The examiner can normally be reached on M-TH (8:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on 571-272-7547. The

fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramnandan Singh  
Examiner  
Art Unit 2614

A handwritten signature in black ink, appearing to read 'R. N. Singh', written over a horizontal line.